THE UNDERGRADUATE.

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THE UNDERGRADUATE.

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THE Warner Science Hall is finished. The old, inconvenient laboratories in the chapel building, which have been occupied from the time whereunto the memory of man runneth not to the contrary, are now things of the past. Henceforth in its more suitable surroundings the light of science will shine with a brighter ray, and no longer in the midst of darkness shall we be compelled to search for hidden wisdom.

On November 16, the long hoped for dedicatory exercises were held; the doors of the Science Hall were formally opened, and from that time the building has been used for regular work. All things have been looked after with the most painstaking care. The facility with which work can be accomplished and the convenience of every thing throughout the whole building, leaves nothing to be wished for. A description of the Hall together with the dedication exercises we give in another column.

Fond memories may cling about the old laboratories, yet it is not with regret that we leave the old for the new, but, rather, with rejoicing that we may now in the use of the building so show our appreciation of what is done for us, that some friend or alumnus may wish to further relieve our necessities, and place in another corner of the campus a much needed gymnasium.

BY the common consent of both the Junior and Sophomore classes, the promenade which has for several years been given by the Junior class at the end of the fall term, has this year been changed and will now be given under the auspices of the Sophomores. This is an innovation which has long been contemplated, and one which should be productive of good results. Instead of burdening one class with two dances, as in former years, each of the three upper classes will now have but one social function during the year. The division of labor thus brought about should allow these social affairs to be given in a more satisfactory way than could ever be hoped for under the old regime. The elaborate preparations made by the class of 1904 for the dance which inaugurates this plan will no doubt insure its adoption.

THE foot-ball season has closed. A series of victories broken only twice by defeat is the reward for the countless amount of energy expended. The captain, manager and team are to be congratulated upon the result of their tireless efforts, while the thanks of all interested in athletics are due Mr. Whittemore for the effective coaching which he gave the players.

The men came in contact with a number of other teams and were as a general thing treated well. The hospitality extended them by St. Lawrence University and Clarkson Technology should be especially noted. We hope that the athletic relations thus begun with these institutions will continue in the future, and that the contests may not be confined to athletics alone, but may, perhaps, extend to debating as well.

IT SEEMS to be necessary about once each year to call the attention of the Alumni to the fact that, try as we will, it is impossible for us to keep track of your address, if it is constantly changing, unless you co-operate with us in the task. The business manager is most desirous that you should receive your paper, but if you do not, it is no fault of his, if he has not been notified of a change of address.

It has always been the aim of THE UNDERGRADUATE to make the Alumni column the most complete of any; this, however, cannot be done unless items are sent in by the Alumni themselves. In this issue the Alumni notes are most conspicious for their brevity. We are thankful to those who, from time to time, send us items of interest, and can but wish that more would follow the example of the few.

DEDICATION OF THE WARNER SCIENCE HALL.

Warner Science Hall, the magnificent gift of Ezra J. Warner, '61, to his Alma Mater, was formally dedicated on Friday, Nov. 15. Owing to the limited seating capacity of the auditorium, the number of persons attending the afternoon exercises had to be restricted by invitation. President Ezra Brainerd presided.

The exercises opened at 2:30 o'clock with reading of Scripture and prayer by Rev. W. S. Smart, D. D., of Brandon, and the singing of Rev. Dr. Rankin's Middlebury College hymn.

Professor Seely, Professor Emeritus of Natural History, made a short introductory address. His subject was "The Past, the Future." Illustrating the assertion that the past is the foundation for the future, he said: "The old looking westward are dreaming of the past; the young with faces eastward are seeing visions of that of which they are to be a part. All structures by man, ocean steamers, suspension bridges, cathedrals, existed once only as a vision, as with this new science hall only a few months ago." The speaker called attention to the rapid progress the college had made in its scientific work, and gave an outline of what was promised in the future. "A knowledge of the past, and 'a hunger to know' are the essentials for the work of the future."

Following Professor Seely came the address of the afternoon and the dedication by Prof. William W. McGilton, Professor of Chemistry.

DEDICATORY ADDRESS.

MR. PRESIDENT, LADIES AND GENTLEMEN:—The occasion of our meeting to-day is one rich in interest to Middlebury College, and not alone to Middlebury College, but to the cause of education throughout the state, the nation, and the world. We meet to celebrate an event which is a grand fruition of a century of history and achievement just passed, and a most encouraging augury for a fuller history and greater achievement for this college as it enters upon its second century. Let this day have set upon it the seal of a red letter. This is a holiday, this is a holy day on which we consecrate this Temple of Science to the cause of education. When some great public work has been completed which is to contribute to the happiness, the health, the peace, the comfort of a community; when some great battle has been won in a righteous cause; when truth and freedom have triumphed over bigotry and tyranny, the people rejoice and celebrate. So do we, to-day, meet to rejoice and exchange congratulations over the completion of a work pregnant with mighty meaning. When a hall of science is built and its doors are thrown open, and the youth of the land are invited to come and take possession, it seems to me that a new temple has been added to the sacred edifices of the world; a new citadel strengthens the walls of defence against the inroads of active ignorance.

On an occasion like this there is difficulty in choosing a line of thought that will be appropriate and also one that can be followed profitably by an audience of the general intelligence and culture of that which I address, and it seems as though I should best render you a service by keeping silent and leaving you to your own reflections upon the significance of the dedication of this Hall of Science, and of the value and importance of scientific study in general I do not wish to emphasize the purely materialistic and commercial side of science by laying stress upon the far reaching importance of a pump, or a peptonoid, and the great material progress that has been made through the development and the extension of the useful arts during the past one hundred years; nor attempt to show how if the achievements of science should be removed from our country the prop and stay of all our industries and wealth would be undermined; nor to catalogue the inventions by discussing the marvelous applications of steam and electricity and the triumphs of chemistry: such would be but trite matter and a mere repetition of what the intelligent are ever taking note of; but I wish to get back of and under all these developments, which are but results, and discuss for a time the cause of these results.

The question is sometimes asked, why is it that such rapid progress has been made in the sciences, in the arts, and in invention during the last half century, exceeding even in the last quarter of a century all of the advancement made in all preceding time. The answer is not far to seek. It is found in the fact that we have reached the practical age of education, which

is only another way of saying that we have reached the scientific age of education. So we are to discuss for a time the influence of science or natural knowledge as an educator and developer of men. The very earliest awakening of the human race was brought about by means of the acquirement of natural knowledge. Indeed, nature and natural phenomena were the only teachers of primitive man and we find this true child of nature gradually emerging from a purely animal existence and enlarging his powers and capacities through the influence of the things that were about him. A wonderful transformation was wrought in this crude being in the school of necessity in which he found himself, and nature ever fertile in suggestions pointed out to him the path of his slow but sure progress. Thus we find him learning from nature how to build a fire, how to fashion his flint utensils and how to construct his dug-out. The advantages secured to him through the acquisition of these first rudiments of knowledge, raised him to a higher plane of being, ennobled him, educated him, enlarged his wants, his needs, his intellect. Ever alert to the promptings of nature, man grew and developed by processes of inductive reasoning, and as we trace the history of this marvelous being from the earliest times down to the present we cannot but see and believe that he has been fashioned in all his complex nature and knowledge by the things that he has seen and felt and handled, and even in the formation of language, in the construction of his metal concepts, in the play of his faith and imagination, and in all the higher faculties of his being, we discover the elements of a physical basis, the circumscribings of personal experience, so that man's knowledge has come to him, as one has said, "out of the action and interaction of man's mind with that which is not man's mind," with that which is outside of himself. There is no law of mental development whereby the mind can feed upon itself and maintain a healthy growth, and as in early man the stimulus and nourishment for mental growth were nature and her teachings, so, to-day, they are the same original source of our intellectual supplies. Had man always been true to this straight course toward intellectual development, the history of his education down to the present would have been far different from what we find it, and the results would have been far different from what they are.

In Paris there is a polished bar of platinum protected with the greatest care from accident or injury and kept inviolable under lock and key. This bar of metal is of a definite length and it bears a certain fixed relation to a dimension that is practically unchangeable, the one-ten millionth part of the quadrant of the earth's circumference measured on the meridian passing through Paris. This bar is the standard *metre* of the world, and if all other measuring sticks which are in use, every where, should be destroyed or become false, they could be either restored or corrected by referring to this standard unit of measurement. So in the world of thought which reaches out in so many directions, and sometimes takes on such fantastic forms, we have a standard of comparison and a basis for computation in the verities and fundamental principles of natural knowledge. It was only when man in the course of his natural and healthy moral and intellectual development lost this unit of comparison and failed to apply the test of natural knowledge that we find the world beginning to fill up with all sorts of intellectual vagaries, and through pride of intellect there began that abnormal process of the mind feeding upon itself, and man's world of thought became filled with black superstition, and bigotry, and idolatry, and intolerance, and false philosophy, and even his faith was unnatural. There were then, indeed, dark ages when the light of truth seemed all but extinguished, and a scarcely better period of scholasticism with its so called seven liberal arts, grammar, dialectics, rhetoric, geometry, arithmetic, music, and the geocentric astronomy that persecuted Galileo, so aptly characterized by Pope's couplet:

> "Good sense, which only is the gift of heaven,
> And though no science fairly worth the seven."

During all this period there prevailed that condition so fatal to intellectual growth, reason subject to authority. Men then were said to have much learning, but there was very little knowledge until, in the fifteenth century, humanism, the renaissance of art, the partial rediscovery of nature, the beginning of scientific research, an enlarged knowledge of the world through discovery, were at work creating a new society and a new philosophy; and scholasticism died of inanition when reason asserted its sway. Galileo and Copernicus were the pioneers in a new intellectual world.

It is a strange fact that man who is dependent upon nature and had through all his early development gained so much through her ministrations should have been all too eager to raise artificial barriers between himself and intimate contact with nature; but so his egotism decreed and through long ages men lived as it were shut away from nature, and there were marked hindrances to the study and development of natural knowledge or practical science. Our ancestors remote, and some not so remote, made small progress in science because of a so-called, if I may use the term, theological prejudice; by their habits of thought and by their religion they in some way considered that they were shut in by nature and dared not penetrate the veil of her mysteries. Among the Greeks mental philosophy was preeminently the empire of thought. Socrates and Plato pondered over logic and ethics. For religious reasons there was a ban put upon investigations of nature. Men were to worship nature and bow in awe and reverence before her mysteries. It would have shocked the sensitive worshiper of the heathen gods to have explained the burning thunderbolts of

Jupiter as fire caused by the interchange of electricity between clouds. The feelings of the ancients in regard to scientific investigation were much the same as those expressed in Campbell's stanza :

> "When science from creation's face enchantment's veil, withdraws,
> What lovely visions yield their place to cold material laws."

With the ancients, and down through the centuries, it has been a common idea that the nature of things could be determined by purely speculative processes, by thought without observation ; one of the philosophers is said to have gone so far as to put out his own eyes so that his mind might not be influenced by external objects, but might give itself to pure contemplation. The modern scientist wishes that he were an Argus with a hundred eyes. The intellectual grasp and power of these philosophers were indeed wonderful, but very faulty and misleading, since they left out the real and the practical. It was not such knowledge as would move the world. Through these habits of thought, this drifting away from the original sources of knowledge, there was fostered a general lack of observation in the mass of mankind. We do not see the things we are looking at. Coupled with this was the unreflective character of man, the inability to connect cause and effect. It was because of these hindrances that the erroneous scientific (if I may so call them) theories and ideas held sway for so long a time and science made no progress for centuries : so that as far down as the time of Milton we find the cosmogony of Paradise Lost based upon the astronomical theory of Ptolemy and the Four Element theory of Empedocles, dating from the fifteenth century before the Christian era.

Human knowledge can never rise above its source, which is the contemplation of things and of beings, the study of the real and the practical ; and then the mighty truth comes home to the mind of man that although he can not penetrate all the hidden mysteries and is forced to recognize his limitations, nevertheless the facts of nature reveal a unity of plan which forms an adequate criterion of knowledge. The ancients theorized and generalized from insufficient data. But to-day with the development of the laboratory or practical idea these hindrances are removed and every theory in order to stand must be verified by the test of experimental observation.

Pride of intellect has for centuries vitiated and destroyed natural knowledge and substituted for it polemics and dogmatism, and men have forgotten that even the language by means of which they have carried on their quibblings, their disputations, their theorizing and philosophizing, had its origin in the things of nature. The history of the development of knowledge has had its ups and downs according as the disposition has more or less prevailed to search the realms of natural knowledge and to apply the measuring rod of the real and practical. Of late there has been a marked tendency toward the return to the original sources of knowledge. Under the working of the laboratory method the facts of science as they are revealed are welcomed by religion as so many stones added to its foundation of faith, and knotty problems are cleared up in sociology, ethics, and philosophy. The mind of man becomes keenly alert to the phenomena of nature, and reflection traces every effect to its true cause, and the laboratory student enters upon the high road to knowledge by the inductive process of reasoning.

Ignorance and bigotry may at times raise their feeble voices and explain the fossils of the earth as the bones of the fallen angels, but the geologist with his hammer in the fields, or in his workshop, says "No ; these are the remains of ancient animal and vegetable life, and through them I read the history of this old world and of man." Ignorance and bigotry may hold up their hands and explain the cholera epidemic of Hamburg, and the bubonic plague of Bombay, as a strange and mysterious visitation of Providence, but the bacteriologist in his laboratory with his microscope and culture media says "No ; no Providence about it. Through the wicked ignorance of man the waters of the river Elbe are poisoned with the cholera germ, and Hamburg is dying ; and Bombay is perishing in its own filth."

What I have thus far said is suggestive of, and emphasizes, the statement which I now make, that experimental knowledge brings the quickest, the most lasting, the most satisfactory returns for the labor expended. To-day no plea for the laboratory or practical method of presenting any study should be needed. As James Russell Lowell has said : "Practical application is the only mordant which will set things in the memory. Study without it is gymnastics and not work which alone will get intellectual bread." "How little of what we value comes to us by direct teaching ! There may be such a thing as too much teaching, and even – in spite of the paradox—too good teaching ; for after all, personal experience in the school, in the college, at the university, as elsewhere in life, is the most efficient teacher, and he who encourages us to help ourselves is our safest guide ;" so writes Professor Cook of Harvard. I think you will endorse me in the assertion that it is only that which we have experienced that becomes actually a part of ourselves, upon which alone we can draw with safety in time of need. The spirit of investigation is the all pervading spirit of the time. This age might well be characterized as the age of criticism, and this is the product of the scientific spirit, the study of things as they are, not as they might be. All of the affairs of life that concern us most intimately must be subjected to what is equivalent to a laboratory test. We do not like to take things for granted or on authority. Each educated man stands with his crucible to separate the dross of error from the pure metal of truth, stands with his balance to weigh the right and the wrong. To be scientifically accurate and logical in all our investigations, whether in the

domains of sociology, morality, or even religion, has come to be the *sine qua non* of our generation.

The domain of science is today preeminently the field where rational methods prevail, and not until the so-called "laboratory method," or practical method has entered all departments of human knowledge and conduct, can we hope for the substantial results com mensurate with those achieved in the realm of science. We perceive that this progressive method of education, the method of actual test, contemplates a simplification of religious faith, the ascendency of Christian principles over denominations and sects. It seeks a theology that is unpolemical, a liberalism that constructs and does not destroy, a creed that is spiritual and humanitarian. It also studies closely the relations of the state to society. The scientifice spirit which pervades everywhere criticizes certain methods in society, in religion, in philosophy, applies the natural test to them and reveals their unnaturalness, and so we are getting a new society with improved methods of living, a new theology with a new man and a new God at its foundation, because newly and better understood, and a new philosophy wlth a finer adjustment to things as they are and not as they might be. Thus do things push onward and upward to nobler and better ends, and "God fulfils himself in many ways."

The theological student must be more a student of the world and less a student of theology. It is a hopeful sign of the times that vigorous movements are being made towards a thorough overhauling of thc old courses in our theological schools. That young theological student, just graduated, who thought to fill up a few months profitably by traveling in the capacity of a book agent, received his first laboratory lesson too late, and sad was his tale of woe and complaint that he poured into the ear of an aged minister of the place where he lived. "Oh!" said the young man, "but the world is bad; men are wicked, and mean, and unsympathetic, and selfish, and hard, and cruel. I am thoroughly disgusted with mankind. I am not going to be a preacher." "Not going to be a preacher!" exclaimed the old clergyman; "Young man, with your experiences and your convictions with regard to the world, let me say, you are just now ready to preach practical religion." There is hope for a common ground of meeting on all subjects for men informed through natural knowledge based upon things as they are.

The question that was mentioned a moment ago, why such marked progress has been made in all departments of thought, and achievement in the last half century, evidently finds its answer in the fact of the prevalence of this scientific or practical idea in education, which applies the test of things and of reason to all questions that arise. The modern educational idea stands at the gate of the twentieth century with four watch words; science, letters, Christianity, politics, and these in every case from a practical standpoint, and we come to a very pertinent question in asking in how far our present system of education is ministering to the practical development of these important departments of thought and knowledge. It would not be appropriate for me, nor would time permit, to discuss the relation of all of these subjects to education. I content myself with considering for a moment the part which science plays in the scheme of the so-called modern education, and simply mention in passing that the scientific method of study must, and more and more does, pervade all departments of knowledge. Science is preeminently anthropocentric, but it teaches that man is part of a great whole and that without a knowledge of the whole the relation of the part cannot be known. Science is a comparatively recent aspirant for recognition as a factor in school and college education. Latin, Greek, and mathematics and the so-called humanities have had it all their own way. This seems a good deal like reversing things, and, as some one has said, "making the tree of knowledge grow roots upward" Do not think for a moment that I seek to pick a quarrel with any particular subject contained in any curriculum of study; that is the farthest from my intention. I would at most only comment upon the relative emphasis placed upon certain subjects, and hold up to view a system of education which in some particulars smacks piquantly of scholasticism, of which there should be no survivals in a scheme that looks towards liberal education, which has been so well and comprehensively defined by Huxley as "the instruction of the intellect in the laws of nature, under which name I include not merely things and their forces, but men and their ways, and the fashioning of the affections and of the will into an earnest and loving desire to move in harmony with those laws." In the light of this definition, I ask if things are not somewhat disproportioned even in our modern system of collegiate education, and particularly so in our far reaching system of secondary education. A student comes up to the age of eighteen years with the idea that about all that was worth happening in the world took place from 2000 to 4000 years ago; that Latin, Greek, and mathematics constitute the sum total of human knowledge; that the knowledge of two or three thousand years ago is of more consequence than the nebular hypothesis and the laws of gravitation; that the Centaur is a far more interesting study than a Baldwin locomotive; that Aeneas, Dido, and Achilles have contributed more to human knowledge than Priestley, Edison, Ramsay, Pasteur, or the whole army of practical nineteenth and twentieth century thinkers and workers. Students come to college with such ideas, and frequently are in college a year or even two, before they find out that they have been living all these years upon a very small segment of the sphere of human knowledge They see how things have been disproportioned, and there is frequently a revulsion of feeling and complete abandonment of the old lines of thought and study that had previously occupied them. They swing over to the other extreme, and

think there is nothing worth following except scientific research, nothing of any consequence except practical training; while if practical scientific training had been judiciously interspersed with classical and theoretical studies, all things would be seen in their true relations, and an equilibrium of the mind would be preserved.

Science, which is the systematic and orderly arrangement of knowledge referred to general truths and principles, should be the true point of departure to reach the desired good in liberal education. The ultimate aim of knowledge is truth, and certainly nothing has brought us along this fascinating road more rapidly than the increase of natural knowledge. I should say, let the fundamentals of knowledge be the scientific truths, the facts of nature as seen by the eye, heard by the ear, sensible to the touch. Let there be a thorough apprehension of things as they are, and we have a series of nuclei about which other facts and truths group themselves, and all our learning and knowledge, for there is a marked distinction between the two, will become better correlated and the path of learning will have a more perfect perspective. The study of language might well be made more studies in anthropology and less studies in syntax and prosody. The scientific method, the practical, correlated, humanistic method, must dominate all studies, language, history, letters, in order to have them reach their full potency as factors in a liberal education. Into these dry bones we must put life, and from these fossil fragments we must construct beings that take their places in the human family and illustrate the law of progress in human development. Then I become a brother to the Greek, I touch shoulders with the Babylonian Kings; I recognize kinship with the Roman; I see how on their shoulders I have risen, and how through them I have been helped along in becoming what I am. Literature is one of the greatest sources of human enjoyment, but in a certain sense literature is an end in a liberal education, rather than a means towards it, for strictly speaking literature contains for us that which we bring to it. Knowledge of books is all well enough, but not when it is at the sacrifice of knowledge of the great open book of nature and of life. Through knowledge of books, men become splendid reflectors of other men's thoughts, but things thus tend to move in a circle and there is little tendency to real advance. Few reach the outer crests of thought and initiative. We may well say amen to the prayer of Dr. Henry Van Dyke, "Lord, keep me from caring more for books than for folks; for art than for life." In language, literature, and art the student can not begin where his master left off. There are few new worlds for him to conquer, but in the realm of science there are infinite possibilities. There the student may build upon all that has gone before and outstripping his master make wondrous additions to the sum of human knowledge

In discussing any large question in education, we must not lose sight of the fact that the majority of the youth of our land never pass beyond the common school, and if they do not there get in a practical way an introduction to science and nature and the scientific method of thought, a knowledge of things as they are, they remain strangers to them forever and are rendered poor indeed. I am reluctant to think that the average student who enters the doors of our American colleges is an index of the amount of scientific knowledge imparted in our secondary and preparatory schools; such however must be the case. Yet while we speak of the one student who comes up to larger opportunities and greater advantages in entering college, we must think of the ninety-nine who never pass beyond the secondary grade, and ask if they have an adequate equipment of natural knowledge, and scientific training, to fit them to cope with the world which they must immediately enter. The world is full of Goliaths and if we must send forth our youth as a stripling let him go forth at least with a sling and five smooth stones, chosen from the stream of truth, in his possession: such as knowledge of the law of conservation of energy; knowledge of the germ theory of disease; knowledge of the general law of cause and effect; knowledge of the kinship of the human race; knowledge of the fundamental principles of evolution, which is the harmony of nature and of being. With these as his simple accoutrement he will be able to join forces with the friends of right, and truth, and progress, and may hope to find a joint in the armor of those who would seek to overthrow him Let him not be left to find out the weapons which he should have used too late, when he has perhaps been wounded to the death.

We are living at a time when there is more happiness and enjoyment and comfort to the square mile, more of the things that make life worth living, than ever before in the history of the world. These things are not secured by the rules of grammar, or by the niceties of rhetorical expression; they are secured by the simple common sense problems of every day life being solved in a scientific and matter-of fact way, and to increase the sum total of human happiness this scientific and matter-of-fact knowledge must be instilled into human beings. The every day questions that confront the human family are questions of fact, not the fine distinctions of linguistic structure or psychological subtilties, and it is the mission of science to-day to bring to the great majority the best practical solution of these questions, while the man of broad culture, the liberally educated man, the product of the college and the university, the highly favored one, with his sound scientific training and knowledge of things as they are, has for his ministry, to convey with force, with enthusiasm, with conviction, to the less favored, the knowledge which they must have in order to live well.

Science has failed to take its proper place in secondary education for one all important reason; we must place the responsibility where it has belonged in

the past and where it largely rests today, upon the colleges. The college, by reason of the emphasis placed upon the subjects, has sent out to the schools well trained language teachers, and so we have fairly good Greek and Latin scholars in the schools, and we have occasionally a readable school boy or school girl essay, a reflection of book learning, and there are students well up in mathematics and thus, with some authoritative drill in a few other subjects, and a frill or two of ethics and aesthetics, the student is turned out into the world to grapple with its realities, and finds them very different from the school room. What I would plead for in our systems of education is a more rational method based upon the real as revealed by the facts of physics, chemistry and biology, and not upon the artificial and superficial. More emphasis should be placed upon the concrete and less upon the abstract. Too many years are spent in memorizing and too little appeal is made to the reason. The truth is that colleges have not been turning out teachers who know enough to soberly, earnestly, devotedly teach the science of life and of things, and hence science, or natural knowledge, has not formed an integral part in secondary education; but this condition of things is happily passing. We can not expect the general education of the masses to rise higher than its source. Teachers who go out from the colleges and universities as a rule teach what they are taught or what they have studied, and very largely preachers preach what they are taught. If, therefore, there are defects in the system of education in our colleges and higher institutions of learning, we must expect to find these defects repeated, and perpetuated, among the teachers of the people. The strong will always have to carry the weak, but the blind cannot lead the blind.

These are momentous times upon which we have fallen, fraught with momentous problems and questions, and pregnant with momentous possibilities for growth and development, or mighty perils. Our horizon is broadening rapidly in many directions, in our enlarging national life with its alien and foreign blood, in our society with its problems of socialism, and capital and labor, in our industrial growth and commercial importance, in our ideas of humanism and theology. Our methods must be enlarged commensurate with the largeness of the problems. With a broader geography to teach than ever before, with a more complex political economy and international law, with a wider anthropology and sociology to inculcate, the American college stands to give the trend to things in the right direction. The American teacher stands at the entrance of the twentieth century with the coming generation of men and women before him, waiting to be educated, and he finds that he has a larger, more important function to perform than ever before. Our teaching must be less provincial and more cosmopolitan.

Finally, whatever is taught, let common sense be taught and more of it; and if there is a text book in the school which does not contain it, throw it out. Teach hygiene, teach it early and teach it late; before it is attempted to produce a sound mind lay the foundation for a sound body. Let that recitation be counted a failure, however perfect it may be, when a trembling hand holds the book and the contraction of pain wrinkles the brow. Teach the science of longevity by showing what to eat and what to drink and how to live. Teach that more disease enters the body through the water we drink and the air we breathe than from any other souce. It is a good sort of practical education to teach that wide spread epidemics that devastate communities and even nations, are the direct result of man's ignorance of simple truths of nature, and it is of vital importance to teach, that there is an order of things, and we must be in harmony with this order in our thinking and in our acting.

The history of the past twenty-five years has, I think, demonstrated that education based upon the scientific method, as I have before stated, brings the surest, the most lasting, the most satisfactory results, and that the scientific mind grapples most successfully with the largest problems, for it alone, as one has said, possesses "that love of truth, that care in its pursuit, and that humility of mind which makes the possibility of error always present more than any other quality."

I think I speak with knowledge when I say that this mind pervades every department of instruction in Middlebury College. It is the spirit of evolution, the unrolling, the opening out in thought and feeling and action into larger, more fully developed forms from previous narrower and more rudimentary conditions. While I have said little in detail concerning this great doctrine, I have endeavored to have all that I have said vibrate to that keynote. The spiral of development in individual and national life has been steadily growing and enlarging through the years. "The thoughts of men are widening with the process of the suns." "We must leave the past years dwelling for the new."

Our philosophy must grow to fill the enlarged horizon of human knowledge.

> "Build thee more stately mansions, O my soul,
> As the swift seasons roll!
> Leave thy low vaulted past!
> Let each new temple, nobler than the last,
> Shut thee from heaven with a dome more vast,
> Till thou at length art *free*.

It is for the fuller growth and more perfect manifestation of this spirit that this hall of science has been built.

What grander work is there than to take the crude material of human nature and fashion it into that which is noble and true and heroic and humane? What nobler occupation can the mind of man lend itself to? What greater, more worthy institutions than the school and the college, or for what more beneficent purpose can we afford to pour out the treasure of our great, rich land?

Ladies and gentlemen, we talk about monuments and tombs to commemorate the virtues and attributes of the dead. I would rather own a brick in a college building or any educational institution where good, honest work is being done in making citizens and developing human minds, than to have a granite shaft in a lonely graveyard, though that shaft might reach to the very stars.

Mr. President, Ladies and Gentlemen: Two years ago in the early part of July I stood with a member of the faculty of this college at the other side of the campus, and we informally broke ground for the new library building. As he seized the spade and turned a sod, he uttered the noble motto of our college, "Scientia et Virtus." Then I in turn lifted a spade full of earth, giving full endorsement to his sentiments, yet adding these words: May the next ground broken on the Middlebury campus be for a science building. At that time there seemed small chance that my desire would have speedy fulfilment, and I might have been pardoned had my voice failed me, but meanwhile there was a noble son of the College who was pondering thoughts that were destined to mightily influence the fortunes and fame of this institution. In the largeness of his thought and the keenness of his penetration into the problems that confront civilization, he knew that a cultured mind and a sound practical education are requisite to right manhood and good citizenship. During a visit to this village, his native place, he came upon the campus, went through our buildings, manifested a keen interest in the development of the College, asked many questions and particularly concerning the work and facilities of the various scientific departments.

Not long after, President Brainerd received a letter from a great city of the West announcing the gif of a science hall to Middlebury College. I do not need to name the writer of that letter. To-day we are proud to inscribe his name over the entrance to this beautiful building. If he were present now, and that he is not is our deep regret, in his modesty, and in the thought of only honoring his Alma Mater, his native town and state, and the cause of education, I believe that he would strive to forbid the words which I speak, but in uttering them I know that I am only voicing the sentiments of all who hear me, for I know that Ezra J. Warner of Chicago and his munificent gift to Middlebury College are uppermost in your thoughts. Twice has he added by substantial figures to the original gift as need required, until the sum has reached $82,500 and this noble structure crowns the work.

We count it an honor to-day, and ever shall, to acknowledge gratitude and esteem and love for this man, the generous benefactor of sound education, who in his lifetime thought to divide his substance with the youth of this land by giving them a portion, which cannot be taken from them by any vicissitudes of fortune, in the shape of trained minds, cultured intellects, and noble hearts, through scientific Christian education.

It now becomes my honor and my very great privilege, by virtue of the authority delegated to me by the president and trustees of the College, to speak the words of formal dedication. Let this building be known as the Warner Science Hall of Middlebury College. It is dedicated to the work of the departments of physics, biology, and chemistry, and kindred subjects, and is to be taken possession of so soon hereafter as the various departments can become installed in their several laboratories. It is dedicated to the promulgation of knowledge in accordance with the eternal principles of truth, and in harmony with the precepts of the first great nature teacher of the race, the God-man of Nazareth.

May the truth here taught be as deep and as broad as the foundations that sustain these walls.

May the culture and the graces of mind here inculcated be as pure and as fair as the marble of the superstructure.

May the characters here formed be as stately and symmetrical and strong as the lineaments of the architecture here embodied.

Like that temple of old which was built many sided with mirrors on every side to reflect the image of an angel that stood on a central pedestal, so from this hall of learning may there be the many sided reflections of the noble, the just, the generous spirit of true science.

At the close of Professor McGilton's address, the hymn "Lord of all being, throned afar," was sung, followed by the benediction by President Brainerd.

The Warner Science Hall, which faces the campus to the south, is 112 feet in length; 80 feet in greatest depth, which includes the hemicyclical hall on the north side; and 42 feet at the ends. It is four stories in height. The material used for the first story is Rutland blue marble, while the wall of the three stories above is of Rutland white marble. A most elaborate system of ventilation has been provided, terminating in handsome chimneys, surmounting the outer walls. The building is heated with steam, and both gas and electricity are used for illuminants. Fittings and furniture are in Western oak. A unique feature is the decoration of the vestibule in colored marbles, to illustrate Vermont products.

The second floor will be given up to physics. Here there is a recitation room, a laboratory for students, a private laboratory for the professor in charge, and a dark room for photometric and photographic work. Projecting through this floor are three stone piers, resting on a solid rock foundation below the level of the building and not in contact with any portions of

the floors or walls. On these will rest the delicate instruments that would be affected by the jar inseparable from buildings, no matter of what solidity. Slate shelves are attached to the walls, to deaden as much as possible the jar on the instruments. Solid brackets overhead will serve for attaching pendulums in experiments requiring them. Adjoining the laboratory is a workshop having air blast and gas connections for glass-blowing, soldering, and similar work.

On the third floor are the natural history and museum exhibits. The latter include mounted specimens of the Vermont birds, marine invertebrates, a valuable series of fossils from the Champlain measures, and a general collection of geological and mineralogical specimens transferred from the old museum of the College. A second large room will have an elaborate herbarium. On this floor the biological and botanical laboratories are large and particularly well lighted, even on the darkest day.

The department of chemistry occupies the whole of the fourth floor. The lecture room in this department, as well as in the other two above noted, will accommodate seats for 100 students. The seats in the departments of physics and natural history are on the same plane, but those in the department of chemistry rise in tiers, so as to permit every student to view experiments performed in the front of the room. A balance room has shelves attached to the walls, to avoid as much as possible vibrations in manipulating delicate instruments. The quantitative laboratory is furnished with all the necessary apparatus for gravimetric and volumetic work. The qualitative laboratory contains 48 individual desks. A chemical library will be provided.

Projecting from the north side of the building on the first and second floors is a semicircular hall, extending some 40 feet, provided with 150 chairs for the purpose of general scientific lectures. Arrangements are here made for illustrations by stereopticon. On the first floor of the main building is a fire-proof room for work in organic chemistry.

The hall was erected at a cost of $83,000, and is the generous gift to the College of Ezra J. Warner of Chicago, one of the most prosperous wholesale merchants of that city. Mr. Warner is a native of Middlebury and a graduate of the College, being the valedictorian of the Class of '61. The building is erected in memory of his father, Joseph Warner, for twenty-five years cashier of the Middlebury National Bank, and for fifteen years an influential member of the board of trustees.

The donor, Ezra J. Warner, spent his boyhood days in Middlebury, and passed from the school life here to the college halls. His interest in education has been shown in various ways in his adopted state and in other localities, and is now shown in the crowning gift, this memorial just completed on the campus of his Alma Mater.

AMONG THE ALUMNI.

[Contributions in the way of literary articles, reminiscences and news of former graduates are especially solicited from alumni.

In the case of a change of address, alumni are requested to notify the Business Manager. Much trouble has been caused in the past by failure to do this.]

'99. Frank W. Cady, who is principal of the Francistown Academy at Francistown, N. H., was in town during the Thanksgiving vacation.

'99. E. J. Waterman, first lieutenant, has been elected captain of Company I, First Regiment, Vermont National Guard. His engagement to Miss Susan Mather of Rutland was announced recently.

'00. Miss Ethel Bates has the position of assistant in the Francistown, N. H., Academy.

'00. F. H. Allen, principal of Beeman Academy at New Haven, Vt., visited friends at College November 16.

'00. A. Bush Wilmarth, professor of science at Burr and Burton Seminary, spent the Thanksgiving recess in town.

'00 Miss Florence Hemenway, who has been teaching at Burr and Burton Seminary, Manchester, was obliged to give up her work for the remainder of the term on account of sickness.

'00. A very pretty home wedding took place Tuesday, Nov. 12, when Miss Florence Ida Bushey, daughter of Mr. and Mrs. J. M. Bushey, and Guy Bertram Horton of North Clarendon, were married at the home of the bride's parents in Rutland. The ceremony was performed by Rev. T. A. Carlson, pastor of the Congregational Church at Shoreham and a College classmate of the groom. Only twenty-five relatives and friends were at the ceremony. At 7:30 the bridal party entered the east parlor where the ceremony was performed, the bride being given away by her father. The house was tastefully decorated with ground pine, cedar boughs and other

greens and cut flowers, and incandescent lights. A reception was held after the ceremony from 8 to 10 o'clock, when many tendered congratulations to the newly married couple. Mr. and Mrs. Horton were the recipients of many beautiful presents They will make their home at Burlington this winter, where Mr. Horton has taken a position in the law office of Hon. Robert Roberts, ex-mayor of Burlington. L. C. Squire, '04, and J. Earle Parker, '01, acted as ushers. The groom's gifts to the ushers were stick pins of pearls.

'01. W. M. Barnard has a position as clerk in the large wholesale furniture house of Heywood Bros. & Wakefield in Boston.

'01. J. E. Parker, private secretary to Senator Proctor at Washington, D. C., visited College friends November 16 and 17.

'01. R. L. Carr took a rest from his studies in the New York Law School and visited his family in town during the Thanksgiving recess.

OBITUARY.

SYLVESTER L. NEVINS, '38.

The Hon. Sylvester Larned Nevins died in New York city, at 400 W. 57th street, October 7, 1901.

Mr. Nevins was the son of Rufus Lathrop and Jane Ten Brook Nevins and was born in New York, April 5, 1819. He graduated from College in the class of '38 and on May 20, 1845, married Miss Julia Garr, five children being born to them. He was engaged in business in Wall street till 1859, when he removed to La Crosse, Wis., where he entered the lumber business.

Mr. Nevins was prominent in politics, being a supervisor and alderman of his adopted city and a state senator during the years '76 and '77.

FOOT BALL.

MIDDLEBURY, 0; ST. LAWRENCE UNIVERSITY, 0.

The 'Varsity left Middlebury on their New York trip on the sleeper Saturday morning, Nov. 2. They reached Canton, N. Y., at 12:30 and were welcomed right royally by the students of St. Lawrence University.

The game was called at 3 p. m., and after two 20-minute halves were played the score stood 0 to 0. The game was marked by much fumbling on both sides, Middlebury being the luckier in getting the ball on these fumbles. The 'Varsity plainly showed the effects of the long ride. Stubbs and Drake put up the best game for Middlebury, while Captain Roblin excelled for St. Lawrence. His line-bucking was one of the features of the game. Middlebury put up a good defensive game, but was unable to gain at critical times.

MIDDLEBURY.	ST. LAWRENCE UNIVERSITY.
Wilds (Capt.), f. b.	Roblin (Capt.), f. b.
Duffield, '02, q. b.	Alexander, q. b.
Skeels, r. h.	Barber, r. h.
Drake, l. h.	Stevenson, l. h.
Perkins, r. e.	Haydon, r. e.
Stubbs, l. e.	Emerson, l. e.
Wilson, r. t.	Harrington, r. t.
Burke, l. t.	Walker, l. t.
Barrett, r. g.	Armstrong, r. g.
Lynde, l. g.	Corwin, l. g.
Allen, c.	Baltz, c.

Score, Middlebury, 0; St. Lawrence, 0. Umpire—Whittemore. Referee—Mosher.

In the evening an informal reception was given the boys at the Beta Theta Pi fraternity house. A part of the fellows were entertained here, and the remainder at the Alpha Tau Omega house. The team received the best treatment possible, having a grand reception and also a grand send off. A large crowd of St. Lawrence men went to Potsdam on Monday to "root" for the Middlebury team.

MIDDLEBURY, 35; CLARKSON TECHNOLOGY, 0.

On November 3 the 'Varsity went from Canton to Potsdam, where they played Clarkson Institute of Technology, defeating them by a score of 35 to 0. Middlebury played much the harder and faster ball. The offensive work was much better than in any previous game. The interference was superb, Drake going around right end once for 90 yards and a touchdown. Drake, Wilds and Youtt played the best game for Middlebury. Brand punted well and did the best all-round work for Clarkson. The line-up:

MIDDLEBURY.	CLARKSON.
Stubbs, l. e.	Rogers, l. e.
Burke, l. t.	Lord, l. t.
Lynde, l. g.	Sperry, l. g.
Allen, c.	Simpson, Pole, c.
Barrett, r. g.	Ward, r. g.
Wilson, r. t.	Van Horn, r. t.

Skeels, r. e.
Duffield, q. b.
Drake, l. h. b.
Youtt, r. h. b.
Wilds, f. b.

Langhaar, r. e.
Caldwell, q. b.
Brand, l. h. b.
Hodge, r. h. b.
Reagon, f. b.

Referee — Davidson, of Columbia. Umpire—Whittemore, of Brown. Timekeepers—Stanley, of Clarkson, and Stone, of Middlebury. Halves : 20 minutes. Touchdowns—Wilds, Drake 3, Skeels, 2 ; goals from touchdowns, Wilds 5.

ALEXANDRIA BAY, 5 ; MIDDLEBURY, 0.

The team went from Potsdam to Alexandria Bay, where they played the strong Athletic Club eleven of that place Tuesday. Here they experienced the first defeat of the season, being beaten by one touchdown to none. The 'Varsity showed the effects of the previous games and travel, for their play was at all times ragged. The field was eight feet higher at one end than at the other, and was rough and lumpy beyond description. The team returned to Middlebury on Wednesday.

UNIVERSITY OF VERMONT, 20 ; MIDDLEBURY, 0.

The second game this season between Middlebury and the University of Vermont resulted in a victory for Vermont by a score of 20 to 0. This game was played Saturday, Nov. 16, on the college campus. There was a large number of rooters from Burlington, and they kept things lively in vieing with the College supporters. College flags, colors, songs and yells were always in evidence, and enthusiasm ran high. Large delegations of Middlebury supporters were present from Rutland, Proctor, Brandon and Bristol.

The snow which had fallen during the week made the field very muddy and slippery. The 'Varsity was light compared with Vermont, and consequently could do nothing against them when it came to push. Vermont made only two end plays during the whole game and in neither did she make any gain. She used her guards-back formation nearly throughout the game. Middlebury could break up the formation, but could not stop it from gaining.

The game was wholly devoid of any sensational features, with the two possible exceptions of the end runs by Drake and the line hurdling of Strait. It was won by weight merely and the Middlebury team feel certain that the result would have been different on a dry field.

For Middlebury Drake, Moore, Skeels and Stubbs did excellent work, while Strait, Morse and Robinson played the game for Vermont. The line up follows :

MIDDLEBURY.	VERMONT.
Allen, c.	Beckley, c.
Lynde, l. g.	Presbrey, l. g.
Thompson, r. g.	Parker, r. g.
Barrett, l. t.	Kingsland, l. t.
Wilson, r. t.	Pierce, r. t.
Skeels, r. e.	Morse, r. e.
Stubbs, l. e.	Phelps, l. e.
Moore, r. h. b.	Gerrish, r. h. b.
Drake, l. h. b.	Newton, l. h. b.
Duffield, q. b.	Robinson, q. b.
Wilds (Capt.), f. b.	Straight (Capt.), f. b.

The officials were : Referee, first half, Brett, of Bowdoin ; second half, Burnham, of Amherst. Umpire, first half, Burnham ; second half, Brett. Timekeepers—Hughes and Martin. Linesmen—McCuen and Joyner. Touchdowns made by Strait, 2, Newton, 2. No goals kicked.

MIDDLEBURY, 16 ; RUTLAND ATHLETIC ASSN., 0.

The last game of the season was played with the Rutland Athletic Association, at Rutland, Thursday, Nov 28. The game was marred somewhat by some unsportsmanlike words and actions, but for the most part it was straight, hard foot-ball and the best playing team won. The impartiality of the officials is worthy of commendable notice. The Rutland players had not the snap and spirit and team play shown by Middlebury and to that fact owed their defeat.

Hazleton kicked to Duffield on Middlebury's 25-yard line and he advanced the ball with good interference about 15 yards. Drake made a couple of three-yard gains through Rutland's line. The 'Varsity fell rapidly into position, and almost before Rutland realized that the play was in motion Drake had circled right end behind excellent interference and, after eluding three or four of the opponents, ended a run of about 55 yards by touching the ball down between Rutland's goal posts, one minute and five seconds after the game began. Wilds kicked an easy goal. The second touch-down was made in the same way in 55 seconds, and the third was scored near the end of the first half.

In the second half Rutland played its best game and neither side scored. The summary is as follows :

Touchdowns—Drake, 2, Stubbs. Umpire—Water-

man. Referee—Lawrence. Timekeepers—Kingsley and Simmons. Linesmen—Botsford and Duffield. Time—Two 20-minute halves. Score, 16 to 0.

WEARERS OF FOOT BALL M'S.

The following men have this season won their "M's," having played in at least one half of half the games: Wilds (Capt.), Drake, '02, Duffield, Stubbs, Skeels, Allen, Wilson, '04, Lynde, Barrett.

MIDDLEBURY'S FOOT BALL STANDING.

Number of games played, 9; victories, 6; defeats, 2; tie game, 1; total points scored by Middlebury, 125; by opponents, 31; home games 3, of which two were victories; out-of-town games, 6, of which four were victories, one defeat, one tie.

Sept. 28, Middlebury 10, Rutland Athletic Association, 6.
Oct. 5, " " 35, Norwich University, 0.
" 12, " " 12, University of Vermont, 0.
" 21, " " 17, St. Lawrence University, 0.
Nov. 2, " " 0, " " " " 0.
" 4, " " 35, Clarkson Institute of Technology, 0.
" 5, " " 0, Alexandria Bay, 5.
" 16, " " 0, University of Vermont, 20.
" 28, " " 16, Rutland Athletic Association, 0.

Totals—Middlebury, 125; Opponents, 31.

The foot-ball season for Middlebury has been extremely satisfactory and successful. We might wish, perhaps, that a little more care had been exercised so that the men could have put forth their best efforts each time; they could then have easily prevented their opponents from scoring in every game except the second one with Vermont. The condition of the field was alone responsible for that defeat. Vermont had improved much since the first game, but only by massing her men in the guards back formation and simply pushing them over the slippery field was she able to win. Had end plays been used more, there is no doubt but Middlebury would have scored, for at no time did an end play fail to gain from five to twenty yards.

The manager, W. J. Stone, has made his report, which shows, after purchasing sweaters for the team according to the constitution, a balance in the treasury of about $40.

LOCALS.

The local chapter of Chi Psi held its annual banquet at The Addison November 16. Ex-Governor Stewart acted as toastmaster.

Mr. Ufford, general secretary of the Y. M. C. A. at the University of Vermont addressed the young men of the College on Tuesday evening, Nov. 26.

G. W. Roberts, '02, who has been ill with typhoid fever, has been taken to his home in New York. Mr. Roberts has nearly recovered and expects to return to College next term.

Friday evening, December 6, Mr. and Mrs. Simms gave an informal reception to a number of College people. There were about forty present and all enjoyed a very pleasant evening.

Miss Deuel, '02, and Miss Barrett, '02, attended the annual initiation and banquet of the Vermont Beta Chapter of the Pi Beta Phi fraternity at Burlington, Thursday evening, Nov. 21.

The usual Junior Promenade will be omitted this year and in its place the Sophomores will give a Sophomore Hop December 20. Markolf, Mellen and Wilson constitute the committee.

Professor Wright attended the meeting of the Vermont Teachers' Association held in Burlington, the week beginning November 17. On Thursday of that week he delivered an address on "College Entrance Requirements in English."

Professor and Mrs. McGilton gave their annual reception to the Senior class Saturday evening, Dec. 7, at the Addison. Several of the young people of the town were invited to meet the Seniors. The evening was a repetition of the good times former classes have enjoyed at these receptions.

The initiation of the Vermont Alpha Chapter of Pi Beta Phi was held on the morning of November 23. A banquet was held in the evening of the same day. Guests present were the Misses Stevens and Carpenter from Vermont Beta Chapter, Miss Landon, Mrs. Denio, Mrs. Bosworth, Miss Brock and Mrs. Ezra Brainerd.

The regular meeting of the Athletic Association for the fall term was held Saturday, Dec. 7. The report of the foot ball manager was read and accepted and a vote of thanks was given Mr. Stone for the efficient way in which he has managed the finances. N. C. Dale's resignation as manager of the base ball team was accepted and J. R. Duffield, '02, elected in his place, L. C. Squire, '04, assistant. G. M. Weld, '03, was then elected manager of foot ball with P. E. Mellen, '04, as assistant.

The seventeenth biennial convention of the Pi Beta Phi fraternity was held at Syracuse the first week in

July. There the delegates and visitors were entertained by the New York Alpha Chapter. The business sessions were held in one of the Syracuse University buildings. An informal reception was given at the chapter house. A grand ball and reception at the "Alhambra," a new opera house, and the banquet, for which 120 covers were laid, was held at the Yates Hotel. Miss Anna K. Deuel was delegate for Vermont Alpha Chapter.

The fifty-fifth annual convention of the Delta Kappa Epsilon Fraternity was held at Washington, D. C., December 12–14. The Washington Alumni Association entertained the fraternity. The convention headquarters were at the New Willard, where the business sessions and banquet were held. About 250 delegates were present, every chapter being represented. A new chapter was granted to a petitioning society of Leland Stanford University. The delegates were entertained with drives to points of interest about the city and a theater party at the Columbia theater. A. C. Sheldon, J. A. Wilcox and F. B. Miner represented the Middlebury Chapter.

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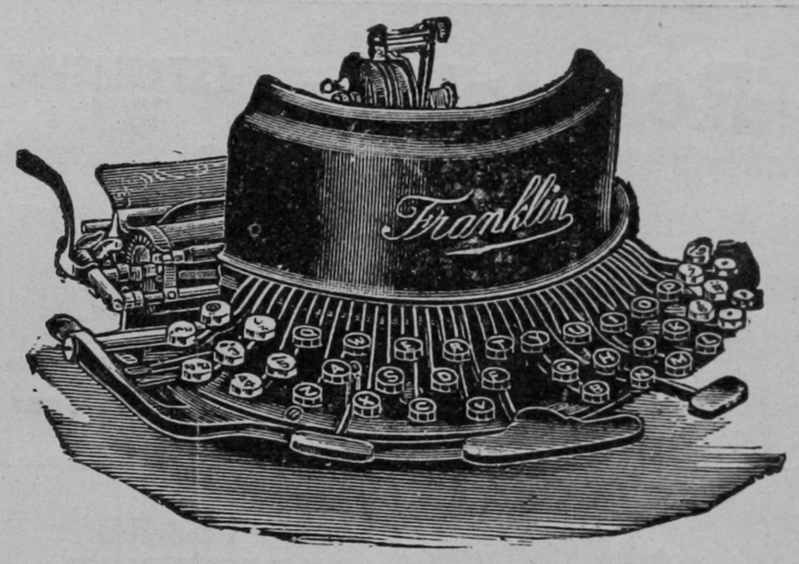

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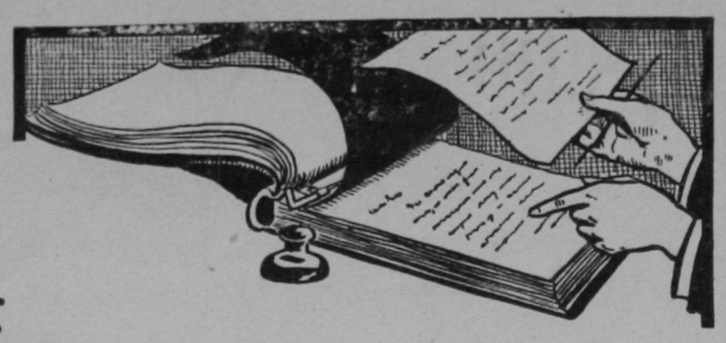

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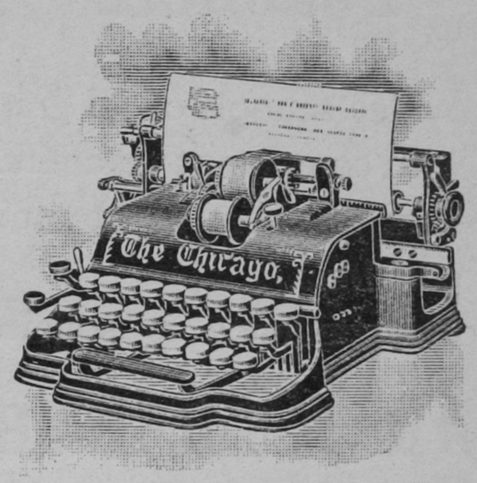

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